Appendix 24

Site Waste Minimisation and Management Plan

Waste Audit

Waste Audit & Consultancy Services (Aust) Pty Ltd
Level 21, 133 Castlereagh Street
Sydney, NSW 2000
Telephone 02 9199 4521
www.wasteaudit.com.au

St Leonards Eastern Quarter

Site Waste Minimisation Plan

April 2022

Table of Contents

1. Introduction

This Waste Management Plan (WMP) has been prepared by Waste Audit & Consultancy Services (Aust) Pty Ltd on behalf of Greaton to accompany a Development Application for the St Leonards South Eastern Quarter (Areas 17, 19, and 20) development.

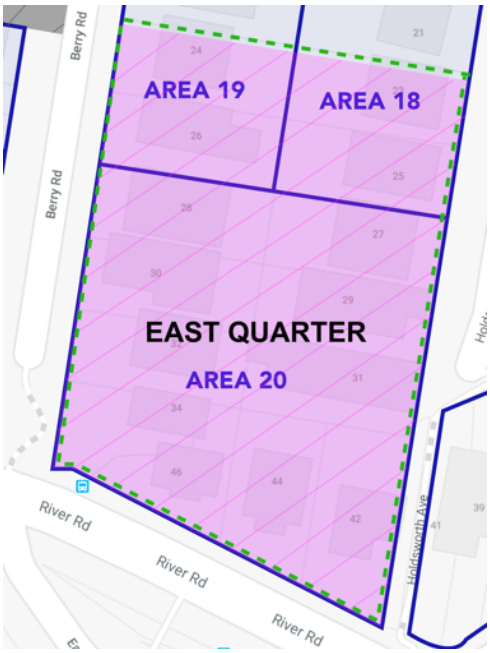
The project consists of 245 apartments and associated landscaping and infrastructure.

The purpose of this Waste Management Plan is to provide guidance on the sustainable management of general waste and recyclable materials that will be generated during the development's demolition and construction phases.

2. Site Boundary

A map of the development site boundary is shown below:

Figure 1: Development Site Boundary Map



3. Legislation, Standards & Guidelines

The following have been used as references:

- NSW *Protection of the Environment Operations Act 1997*
- NSW *Protection of the Environment Operations (Waste) Regulation 2014, Part 11*
- NSW *Waste Avoidance and Resource Recovery Act 2001*
- NSW EPA *Waste Classification Guidelines* 2014
- Lane Cove Council *Development Control Plan 2010, Part Q*

4. Reference Documents & Reports

The following diagrams, documents and reports have also been consulted in compiling this report:

- A0001_Project Summary
- 220429_STLEO_EQ_DA Design Report
- A0007_LEP KEY SITES DIAGRAM_[B]_ALL LAYERS
- A0300_SITE SECTION 01_[D]
- Site Boundary Map

5. Reporting & Targets

Waste and construction contractors will be required to provide monthly reports to the Project Managers on waste reused, reprocessed/recycled, and sent to landfill, including the following:

- Date and time material removed
- Material type and quantity (in kg and/or cubic metres)
- Processing facility material taken to, and facility license information
- Vehicle registration and waste contractor's company details

This information will also be kept on site and made available for inspection to authorised Council officers during site works. At the conclusion of site works, the construction contractor will retain all waste documentation and make this documentation available for inspection.

The project's waste management objectives and targets will include:

- Meeting all waste management standards while ensuring the health and safety of all workers on the project during demolition and construction
- Maximising the quantities of materials diverted from landfill by reusing materials onsite and offsite, and recycling/reprocessing materials off-site
- The diversion from landfill of 80% of construction waste by weight, to meet the criteria of the NSW State Government's waste legislation, policy settings and regulatory regime
- Disposal of no more than 20% of residual waste materials to a licensed landfill in accordance with both regulatory and legal requirements

6. Management Practices

The following management practices will be considered and where feasible implemented over the design, procurement, demolition, and construction (including fitout) stages of the project:

Table 1: Management Practices

Stage	Practice	Responsible
Design	Use of modular/prefabricated components in design Design for materials to standard sizes Design for operational waste minimisation	Architect, Builder, Engineer, Subcontractors
Procurement	Specify recycled and reprocessed materials Specify components that are reusable after deconstruction	Architect, Engineer, Builder, Subcontractors
Pre-Demolition	Review Waste Management Plan and amend as required to address any changes in project scope Undertake hazardous materials survey and waste classification before commencing any demolition works If suspect materials are encountered, implement Unexpected Finds Management Protocol (Section 7)	Project Manager, Builder Project Manager, Builder Project Manager, Builder
Demolition	Implement waste avoidance, reuse, and recycling practices as detailed in Waste Management Plan	Builder & Waste Contractor
Construction	Implement waste avoidance, reuse, and recycling practices as detailed in Waste Management Plan Minimise recurring packaging materials Return packaging to the supplier Re-use of materials on site Separation of materials on-site for recycling Monitor and audit correct usage of bins Monitor and audit waste contractor(s)	Builder & Waste Contractor Subcontractors Builder & Subcontractors Builder & Subcontractors Builder & Waste Contractor Builder & Waste Contractor Builder

7. Hazardous Materials

If unexpected finds and/or suspect materials (identified by unusual staining, odour, discolouration or inclusions such as building rubble, asbestos sheets/pieces/pipes, ash material, imported fill materials etc.) are encountered during works, the following actions are to be undertaken:

If unexpected finds and/or suspect materials are encountered:

- Works are to cease;
- An Environmental Consultant is to be engaged to take appropriate action; and
- If contamination is identified, the contaminated materials must be disposed of at an EPA licensed landfill facility with an appropriate waste classification.

If bonded asbestos containing material (ACM) is encountered:

- Engage a NSW WorkCover accredited Class B asbestos contractor;
- Removal of the asbestos waste must be carried out in accordance with the requirements of the regulators, such as NSW WorkCover and NSW EPA; and
- Engage a WorkCover Licensed Asbestos Assessor to provide a clearance certificate.

If friable asbestos is encountered:

- Engage a NSW WorkCover accredited Class A Asbestos contractor;
- Removal of the asbestos waste must be carried out in accordance with the requirements of the regulators, such as NSW WorkCover and NSW EPA; and
- Engage a WorkCover Licensed Asbestos Assessor to provide a clearance certificate.

8. Demolition Stage

Table 2 shows estimated quantities in cubic metres of demolition waste, and management practices and processing/disposal outcomes for each material type. The Recovery Rate is the proportion of material that is likely to be actually reused or recycled either on-site, or at a licensed facility, taking into account material stream contamination and facility processing efficiencies.

Specific disposal/recycling facilities have not been shown, as waste removal contractors have not yet been appointed for the project. This also applies to the construction phase.

Table 2: Demolition Waste - Expected Materials Streams

Materials on Site				Destination/Processing/Disposal		
Type of Material	**Est. m^3**	**Recovery Rate**	**Net m^3**	**Onsite**	**Offsite**	**Disposal**
Bricks & Masonry	**840**	**98.0%**	**823**	Crush for use in pavement and/or temporary road construction	If onsite use not possible, send acceptable quality bricks for reuse; recycle unusable bricks for use in aggregate products	Dispose of residual materials to landfill
Concrete	**700**	**98.0%**	**686**	Crush for use in pavement and/or temporary road construction	Separate onsite and take material to concrete recycling facility	Dispose of residual materials to landfill
Roof Tiles	**420**	**99.0%**	**416**	No on-site reuse or recycling	Send for reuse if feasible and/or recycling depending on condition	Dispose of residual materials to landfill
Trees & Vegetation	**420**	**98.0%**	**412**	No onsite reuse likely to be possible	Take to organic waste facility for processing into mulch for reuse in landscaping works	Dispose of residual materials to landfill

Materials on Site				Destination/Processing/Disposal		
Type of Material	Est. m^3	Recovery Rate	Net m^3	Onsite	Offsite	Disposal
Floor Coverings	**140**	**95.0%**	**133**	No on-site reuse	Collect in designated bin and send for recycling	Dispose of residual materials to landfill
Metals	**140**	**99.0%**	**139**	No on-site reuse	Collected for separation into different metal types for recycling	Dispose of residual materials to landfill
Structural Timber	**112**	**95.0%**	**106**	Potential for onsite reuse	Collect in designated bin and send for recycling	Dispose of residual materials to landfill
Plumbing, Fittings	**70**	**100.0%**	**70**	No on-site reuse	Collect for separation into different metal types for recycling	No disposal to landfill
Window Glass	**70**	**100.0%**	**70**	No on-site reuse or recycling	Send for reuse if feasible or recycle depending on condition	No disposal to landfill
Misc. General Waste	**70**	**0.0%**	**0**	No on-site reuse or recycling	No off-site reuse or recycling	Disposal to landfill
Recyclable Packaging	**28**	**100.0%**	**28**	No on-site reuse or recycling	Collect in designated bin and send for recycling	No disposal to landfill
Plasterboard	**28**	**98.0%**	**27**	No on-site reuse	Collect in designated bin and send for recycling	Dispose of residual materials to landfill
Lighting Fixtures	**28**	**100.0%**	**28**	No on-site reuse or recycling	Collect in designated bin and send for recycling	No disposal to landfill
Electrical Wiring, Fittings	**28**	**100.0%**	**28**	No on-site reuse	Collect for separation into different metal types for recycling	No disposal to landfill
Bathroom & Kitchen Tiles	**14**	**100.0%**	**14**	No on-site reuse or recycling	Collect in designated bin and send for recycling	No disposal to landfill
TOTAL MATERIALS	**3,108**	**95.9%**	**2,980**	The demolition phase will produce around **3,108 m^3** of materials, of which **2,980 m^3** or **95.9%** can potentially be diverted from landfill, by being reused on site, or recycled off-site at a dedicated facility.		

9. Construction Stage

Table 3 shows estimated quantities in cubic metres of construction waste, and management practices and processing/disposal outcomes for each material type, including materials generated from deliveries, such as pallets, pallet wrap, cardboard packaging, and general waste and recyclables disposed of by contractor staff.

Table 3: Construction Waste - Expected Materials Streams

Materials on Site				Destination/Processing/Disposal		
Type of Material	**Est. m^3**	**Recovery Rate**	**Net m^3**	**Onsite**	**Offsite**	**Disposal**
Excavation for Basements	**91,565**	**90%**	**82,408**	Reuse in landscaping works	Take material to facility for processing for reuse at other sites	Dispose of residual materials to landfill
Pallet Wrapping (Soft Plastic)	**71**	**96%**	**68**	Reuse on site where possible	Collect in designated bin and send for recycling	Dispose of residual materials to landfill
Used Pallets	**68**	**90%**	**61**	Reuse on site for storage where possible	Collect in designated bin and send for recycling	Dispose of residual materials to landfill
Cardboard Recycling	**55**	**98%**	**54**	No reuse/ recycling	Collect in designated bin and send for recycling	No disposal to landfill
Metal Offcuts, Sheeting, Wiring, etc.	**48**	**98%**	**47**	Collect for separation into different metal types for recycling	Collect in designated bin and send for recycling	Dispose of residual materials to landfill
General Waste	**46**	**0%**	**0**	No reuse/ recycling	Collect in separate designated bin	Disposal to landfill
Plasterboard Offcuts	**43**	**90%**	**39**	No reuse/ recycling	Collect in designated bin and send for recycling	Dispose of residual materials to landfill
Floor Coverings	**41**	**90%**	**37**	No reuse/ recycling	Collect in designated bin and send for recycling	Dispose of residual materials to landfill
Plastics Recycling	**34**	**95%**	**32**	No reuse/ recycling	Collect in designated bin and send for recycling	Dispose of residual materials to landfill
Timber Offcuts	**32**	**95%**	**30**	Potential for onsite reuse	Collect in designated bin and send for recycling	Dispose of residual materials to landfill
Concrete (Excess)	**27**	**100%**	**27**	No reuse/ recycling	Collect in designated bin and send for recycling	No disposal to landfill
Glass (Excess)	**23**	**100%**	**23**	No reuse/ recycling	Collect in designated bin and send for recycling	No disposal to landfill
TOTAL MATERIALS	**92,052**	**90.0%**	**82,827**	The construction phase will produce around **92,000 m^3** of materials, of which **82,827 m^3** or **90.0%** can potentially be diverted from landfill, by being reused on site, or recycled off-site at a dedicated facility.		

10. Waste Storage Locations

Temporary bins for storage of demolition and construction waste will be located in easily accessible areas of the development site. Exact locations will be determined in consultation with the development's builder and waste contractor prior to commencement of works:

This report has been prepared by:
Peter Hosking

Director
Waste Audit & Consultancy Services (Aust) Pty Ltd
April 26, 2022

Appendix: Lane Cove Council Waste Management Standards

The relevant sections of the Lane Cove Council *Development Control Plan Part Q - Waste Management & Minimisation* pertaining to the management of demolition, construction, and operational waste are reproduced below.

3.1 Demolition of Buildings or Structures

General

The demolition stage provides great scope for waste minimisation. Proponents are actively encouraged to consider possible adaptive reuse opportunities of existing buildings/structures, reuse of materials or parts thereof.

Aim

The principal aim of managing this activity is to maximise resource recovery and minimise residual waste from demolition activities.

Objectives

1 Optimise adaptive reuse opportunities of existing building/structures.

2 Maximise reuse and recycling of materials.

3 Minimise waste generation.

4 Ensure appropriate storage and collection of waste.

5 Minimise the environmental impacts associated with waste management.

6 Avoid illegal dumping.

7 Promote improved project management.

Controls/Requirements

a) A completed Site Waste Minimisation and Management Plan (SWMMP) must accompany any demolition application.

b) Pursue adaptive reuse opportunities of buildings/structures.

c) Identify all waste likely to result from the demolition, and opportunities for reuse of materials. Refer to Figure 1.

d) Facilitate reuse/recycling by using the process of 'deconstruction', where various materials are carefully dismantled and sorted.

e) Reuse or recycle salvaged materials onsite where possible.

f) Allocate an area for the storage of materials for use, recycling and disposal (giving consideration to slope, drainage, location of waterways, stormwater outlets, vegetation, and access and handling requirements).

g) Provide separate collection bins or areas for the storage of residual waste.

h) Clearly 'signpost' the purpose and content of the bins and storage areas.

i) Implement measures to prevent damage by the elements, odour and health risks, and windborne litter.

j) Minimise site disturbance, limiting unnecessary excavation.

When implementing the SWMMP the applicant must ensure:

- Footpaths, public reserves, street gutters are not used as places to store demolition waste or materials of any kind without Council approval.
- Any material moved offsite is transported in accordance with the requirements of the Protection of the Environment Operations Act (1997).
- Waste is only transported to a place that can lawfully be used as a waste facility.
- Generation, storage, treatment and disposal of hazardous waste and special waste (including asbestos) is conducted in accordance with relevant waste legislation administered by the EPA and relevant Occupational Health and Safety legislation administered by WorkCover NSW.
- Evidence such as weighbridge dockets and invoices for waste disposal or recycling services are retained.

Note: Materials that have an existing reuse or recycling market should not be disposed of in a landfill. Figure 1 provides a list of some potential reuse/recycling options. Reuse and recycling opportunities are decreased when asbestos is not carefully removed and segregated from other waste streams.

3.2 Construction of Buildings or Structures

General

Attention to design, estimating of materials and waste sensitive construction techniques and management practices can achieve significant rewards in managing waste.

Aim

The principal aim of managing this activity is to maximise resource recovery and minimise residual waste from demolition activities.

Objectives

1 Maximise reuse and recycling of materials.

2 Minimise waste generation.

3 Ensure appropriate collection and storage of waste.

4 Minimise the environmental impacts associated with waste management.

5 Avoid illegal dumping.

6 Promote improved project management.

7 Optimise adaptive reuse opportunities of existing building/structures.

Controls / Requirements

a) A completed Site Waste Minimisation and Management Plan (SWMMP) shall accompany the application.

b) Note: The type of construction determines whether a development application, construction certificate or complying development statement is required. In all cases a SWMMP must be completed. Maximum waste minimisation and management benefits are achieved when the SWMMP is considered from the earliest stages of the development.

c) Estimate volumes of materials to be used and incorporate these volumes into a purchasing policy so that the correct quantities are purchased. For small-scale building projects see the rates in Appendix B Waste/Recycling Generation Rates for a guide.

d) Identify potential reuse/recycling opportunities of excess construction materials.

e) Incorporate the use of prefabricated components and recycled materials.

f) Arrange for the delivery of materials so that materials are delivered 'as needed' to prevent the degradation of materials through weathering and moisture damage.

g) Consider organising to return excess materials to the supplier or manufacturer.

h) Allocate an area for the storage of materials for use, recycling and disposal (considering slope, drainage, location of waterways, stormwater outlets and vegetation).

i) Arrange contractors for the transport, processing and disposal of waste and recycling. Ensure that all contractors are aware of the legal requirements for disposing of waste.

j) Promote separate collection bins or areas for the storage of residual waste.